

INFORMATION DISCLOSURE STATEMENT

Applicant directs the Examiner's attention to the Information Disclosure Statement, citing two (2) references, filed concurrently herewith.

35 U.S.C. §103(a) KITAMI/SCHAFFT REJECTION

Claims 1-9 and 22-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,861,704 to Kitami et al. in view of U.S. Patent No. 3,562,563 to Schafft. This rejection, in so far as it pertains to the presently pending claims, is respectfully traversed for the following reasons.

Kitami discloses a long, slender cylindrical transformer working in a longitudinal mode which is polarized along the longitudinal length of the cylinder. Further, Kitami solves the problem of large internal stresses (chipping) and unnecessary noise by the use of a long, slender, cylindrical bar to avoid spurious modes.

Schafft discloses a ring shape transformer with annular portions 11a and 11b connected by small bridges of material. The Schafft transformer operates in the peripheral or hoop mode. Further, Schafft is solving the problem of attempting to increase the voltage and/or total power of the transformer, but not the power density, which remains the same.

Applicant asserts that Kitami and Schafft are not combinable because, first, Kitami operates in the longitudinal mode, whereas Schafft operates in the hoop mode and second, Kitami is solving a complete different problem, namely reducing stress and/or noise, whereas Schafft is trying increase voltage and/or power. Given their different operating modes and the different problems being solved, Applicant believes there is nothing in Kitami which suggests the benefit of

using an annular transformer instead of a solid cylindrical one. There is no suggestion in Kitami that such a change will decrease the internal stress or decrease the noise.

Similarly, in Schafft, there is absolutely no teaching that the use of a solid cylindrical transformer would increase the voltage and/or power of the transformer. As a result, Applicant asserts that one of ordinary skill in the art would not combine Kitami with Schafft and the Examiner's assertion that one of ordinary skill in the art would do so "for the purpose of providing an improved high voltage transformation device and to increase the power handling capability of a ceramic ring transformer" is not suggested by either Kitami or Schafft.

Accordingly, Applicant respectfully submits that claims 1-9 and 22-24 are allowable for at least this reason.

Applicant further assert that the combination of Kitami and Schafft does not operate for its intended purpose for the following reasons.

As presented in the personal interview of January 16, 2003, Figure A below illustrates a finite element analysis (FEA) of a PZT ring-shaped transformer designed according to the teachings of Schafft (where the primary section is in purple), center-filled with PZT (Figure G). Figure B below illustrates the simulate admittance between 400-700 kHz, for the resonator illustrated in Figure A. As illustrated in Figure B, the admittance is highly irregular due to spurious modes.